



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/034,358

12/28/2001

Renxiang Li

CR00271M(72461)

8392

22242

7590

09/22/2004

FITCH EVEN TABIN AND FLANNERY
120 SOUTH LA SALLE STREET
SUITE 1600
CHICAGO, IL 60603-3406

EXAMINER

HARVEY, DAVID E

ART UNIT

PAPER NUMBER

2614

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/034,358 | Applicant(s) LI, RENXIANG | |
| | Examiner DAVID E HARVEY | Art Unit 2614 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12 and 17-24 is/are rejected.
- 7) ☒ Claim(s) 10, 11, AND 13-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/15/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2614

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Topper [US #6,473,460] in view of Hedley et al. [US #5,181,111].

I. The showing of Topper:

Figure 1A of Topper illustrates a system for converting interlaced video information into progressive video information that includes:

a) A video signal source (not shown) for **providing**

first and second temporally displaced fields of video data comprising pixel lines;

b) Circuitry (e.g. @ 110 and 112) for **selecting** one of the first and second fields to be "selected interlacing field data" (@ 110) and the remaining one

Art Unit: 2614

of the first and second fields to be "reference interlacing field data" (@ 112);

c) Circuitry for selecting a first region of the selected field data [e.g. SEE: block 610 of figure 6];

d) Circuitry (@ 114) for **comparing** the selected first region of the selected field data (@ 110) with a plurality of comparison regions of the reference field data (@ 112) to identify a first comparison region that most closely corresponds to the respective selected first region of the selected field data [SEE: blocks 612 and 614 of figure 6];

e) Circuitry for selecting a second region of the selected field data which overlaps the first [e.g. SEE: block 616 of figure 6];

f) Circuitry (@ 114) for **comparing** the selected second region of the selected field data (@ 110) with a plurality of comparison regions of the reference field data (@ 112) to identify a second comparison region that most closely corresponds to the respective

Art Unit: 2614

selected first region of the selected field data [SEE:
blocks 618 and 620 of figure 6];

g) Circuitry (@ 116) for converting the selected
interlacing filed data (@ 110) into progressive video
information at least using the data from the first and
second comparison regions.

II. Differences:

Claim 1 differs from the showing of Topper only in that
claim 1 recites a step in which "additional pixel
information" is added to the selected interlacing filed
data prior to "comparing" [e.g. @ lines 10 and 11 of claim
1].

III. Obviousness:

In the system described by Topper, the motion vector
detector (@ 114) compared odd and even interlaced fields of
video data to detect the motion vectors. Hedley et al
evidences that it was known that such a process, e.g. the
comparison of odd and even interlaced field data to detect
motion vector, produced erroneous results due to the offset
in the pixel spatial relationship that exists between such

Art Unit: 2614

interlaced fields [e.g. lines 2-6 of column 6]. Hedley et al taught that such errors could be avoided by adding addition interpolated pixel data to each of the respective interlaced fields prior to motion detection [e.g. lines 50-68 of column 5 and lines 1-6 of column 6].

Thus, it would have been obvious to one of ordinary skill in the art to have added additional interpolated pixel data to the field data described in Topper, i.e. in accordance with the teachings of Hedley et al, to avoid the errors that were known to have occurred when detecting motion vectors utilizing interlaced field data.

Art Unit: 2614

3. Claims 2-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Topper [US #6,473,460] in view of Hedley et al. [US #5,181,111] for the same reasons that were set forth for claim 1 above. The following is noted:

- a) With respect to claim 2: The examiner notes that interlaced fields inherently comprise odd/top fields and even/bottom fields of opposite polarity;
- b) With respect to claims 3 and 4: In accordance with the teaching of Hedley et al., said additional pixels comprised interpolated lines of pixels [e.g. lines 56-63 of column 5]; i.e. wherein such a line interpolation process clearly comprises interpolation in the vertical spatial direction thereby requiring vertical filtering.
- c) With respect to claims 5-9, and 12: Note lines 33-49 of column 4 of Topper.

4. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Topper [US #6,473,460] in view of Hedley et al. [US #5,181,111] for the same reasons that were set forth for claim 1 above.

Art Unit: 2614

5. Claims 19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Topper [US #6,473,460] in view of Hedley et al. [US #5,181,111] for the same reasons that were set forth for claim 1 above.

6. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Topper [US #6,473,460] in view of Hedley et al. [US #5,181,111] for the same reasons that were set forth for claim 19 above. The following is noted:

a) With respect to claim 20-22: Note figure 1B and lines 18-39 in column 3 of Topper.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Topper [US #6,473,460] in view of Hedley et al. [US #5,181,111] for the same reasons that were set forth for claim 1 above. The following is noted:

The examiner notes that the provided interlaced fields in the system disclosed by Topper are fed sequentially to stores 110 and 112. Thus, the provided odd and even interlaced fields comprise the selected field and the reference field on an alternating basis; i.e. during a first field period, an odd field represents the selected field and an even field represents the reference field which during the next field period, an even field represents the selected field and the odd field represents the reference field.

Art Unit: 2614

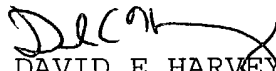
8. Claims 10, 11, and 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2614

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID E HARVEY whose telephone number is (703) 305-4365. The examiner can normally be reached on M-F from 9AM to 6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller, can be reached on (703) 305-9000. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DAVID E HARVEY
Primary Examiner
Art Unit 2614